CARABIDAE COMMON TO EUROPE AND NORTH AMERICA

By Carl H. Lindroth[1]

John Hamilton was not the first coleopterist interested in comparisons between the New and Old World fauna—previously J. L. LeConte (1848, 1850) and F. W. Mäklin (1853, 1855) had touched this question —but Hamilton, in 1889 (revised in 1894), gave the first list of species of beetles common to Europe and North America which pretended to be tolerably complete. His papers were shortly afterwards discussed by Fauvel (1889) and Champion (1895) but very little was added by them. Later comparisons of this kind have concerned single species only or, in the case of Brown (1940, 1950), only European species introduced into North America.

In the family Carabidae Hamilton (1894) listed 45 "Eur-American" species, 16 of which must be cancelled as due to wrong determinations. On the other hand, a considerable number of new members have gradually been added to this distribution-group, most of them previously hidden under different names on the two continents. However, not a few species formerly regarded as truly Palaearctic have been discovered in America. Some of them are recent introductions. Others are indigenous and circumpolar, as a rule in high latitudes.

In the present list the number of carabids common to Europe and North America is increased to 78, or 91 if those showing clear subspecific differences are included. Of these, 40 species (perhaps even 43) are recent introductions in North America.

Hamilton, in both his lists (1889, 1894), included also the species of Coleoptera common to North America and Asia but unknown in Europe. Due to my insufficient familiarity with the carabid fauna of Siberia I am not prepared on this occasion to give a revised list of species belonging to this very numerous group of distribution.

The main part of my work on this list has been done at the Museum of Comparative Zoölogy, Cambridge Massachusetts, where a generous Rockefeller grant enabled me to spend 3 months during the spring of 1951. I am greatly indebted to Dr. P. J. Darlington Jr., Fall Curator of Coleoptera, for valuable assistance and suggestions. My original project was the identification of carabids collected in Newfoundland in 1949 with a grant from the Arctic Institute of North America, but eventually the study was enlarged to cover all species common to both continents. Complementary investigations were made at the museums in Washing-

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ton, New York and Ottawa. I am especially indebted to Professor Melville H. Hatch of Seattle, Washington, who generously sent me specimens of the numerous European species found in the Pacific Northwest.

The following list must be regarded as preliminary and I would much appreciate any corrections or additions sent to me at the address given above.

In most cases the identity—or the contrary—of North American with European specimens has been confirmed by microscopic examination of the male genitalia, which is indicated by an asterisk (*). Species stated or suggested to be introduced into North America by human agency are marked with a cross (†), in doubtful cases placed in brackets.

The arrangement of species, with a few exceptions, follows Leng (1920). If a different name is used for a species, subgenus, or genus, the Leng name (or the name used by other recent North American authors) is given as a synonym.

For further information about the new synonyms the reader is referred to my paper "Random notes on North American Carabidae," in the *Bulletin of the Musêum of Comparative Zoology,* vol. III (3), pp. 117-161, 1954.

Abbreviations used are:
AMN = American Museum of Natural History, New York.
BMN = British Museum, Natural History, London.
DAO = Department of Agriculture, Ottawa.
MCZ = Museum of Comparative Zoölogy. Cambridge, Massachusetts.
NMW = National Museum, Washington, D. C.
UMH = Zoological Museum, University, Helsingfors, Finland.
! = personal examination by myself.
States and provinces are abbreviated as in Leng.

A. Species identical on both continents

† *Carabus granulatus* L.—B. C., Wash. (Hatch 1933b; 1945, p. 143; 1946b). E. St., E. Can. (Brown 1940, p. 69; Van Dyke 1945, p. 128). —Europe. Asia E. to the Pacific (incl. Japan). It is interesting to observe that this species appears in America in two different, well defined forms. First is the *f. typica* of N. and C. Europe (Breuning 1932-37, p. 534). To this belong all specimens from New England and the Pacific Northwest, and also 1 example from Norman Wells, N. W. T., "among frozen strawberries from B. C.", and 1 example from Toronto, Ont., "in shipment from Holland" (both in DAO!). The second is a larger form,

with the carinae and tubercles of the elytra less elevated and more strongly microsculptured, which gives the whole surface a smoother and duller appearance. This form, of which I have seen 45 American examples, all from N. B. and N. S., is not mentioned by Breuning but it is known in the British Islands as "*interstitialis*" (though not identical with the true *f. interstitalis* Dft. from S. E. Europe). A study of the material available at the British Museum revealed pronounced "*interstitialis*" from Ireland, where it is widely distributed and predominant, and 1 example each from Loch Maree in N. W. Scotland and North Uist in the Hebrides. From England and the rest of Scotland at most intergrading forms were found. It seems clear from all this that *granulatus* has been introduced into North America more than once, from different European—though perhaps always from British—ports.

† *Carabus memoralis* Müll.*—Pacific N. W. (Hatch 1933b; 1946b; 1949a, p. 144; Leech 1935, p. 120; Van Dyke 1945, p. 127). E. St. E. Can. (Brown 1940, p. 69).—Europe only, in the Old World.

† *Carabus cancellatus* Ill.—Wis. (Leng 1920). In MCZ 3 examples labeled N. C. (Coll. F. A. Eddy) !—Europe, Siberia E. to Lena River. It is doubtful whether this species is established in America (*vide* Van Dyke 1945, p. 88).

† *Carabus auratus* L.—New England: Mass., several examples; Vt. 1 example; Me. 1 example (MCZ !). Probably established at least in Mass.—Europe (excl. the E.).

† *Calosoma sycophanta* L.—Atl. St., successfully introduced from Europe (Burgess & Collins 1917, p. 65).—Europe, N. Africa, W. Asia.

Elaphrus lapponicus Gyll.* (*obscurior* Kby., *obliteratus* Mnh.).—Transamerican in high latitudes.—N. W. Europe, E. Siberia (Lena River, Kamtschatka). The penis agrees completely in outer structure as well as in the inner, very complex armature in 6 males from the following localities: lecto-holotype of *obliteratus* Mnh., Kadjak, Alas. (UMH); Churchill, Man. (DAO); Battle Harbour, Labr. (Lth); Lofoten, Norway; Finnish Lapland; "Siberia." The lecto-allotype of *obliteratus* (UMH) is larger, 11.2 mm. (a paratype in coll. Lec. is 10.2 mm.) and very broad especially the prothorax. In Scandinavia and Siberia ("var. *elongatus* Eschz.", UMH !) the speices has a constantly narrower prothorax, but so have the Labrador specimens, the lecto-holotype of *obliteratus*, and the female type of *obscurior* Kby. (BMN !). The size of Scandinavian *lapponicus* is 8.5-10 mm. The N. W. American population seems more than usually variable, but there is no reason to maintain *obliteratus* even as a subspecies.

Elaphrus riparius L.*—Transamerican.—Europe, N. Asia E. to Kamtschatka.

Diachila polita Fald.*—Alas. (NMW ! MCZ !). N. W. T. (Reindeer Depot, Mackenzie Delta, DAO !).—On the Eurasian tundra from Kola Peninsula to Kamtschatka.

Blethisa eschscholtzi Fisch.—Tex. ("5 mi. e. Sanderson," 29. VIII. 1935, Chas. E. Burt, 1 ♀, NMW !).—S. E. Russia, W. Siberia. The capture of this west-palaearctic species in America is remarkable, but the accurate label seems reliable.

Loricera pilicornis Fbr.* (*coerulescens* auct., *neoscotica* Lec.).—Transamerican.—Europe, N. Asia E. to Kamtschatka.

Notiophilus aquaticus L.* (*hardyi* Putz.).—Transamerican.—Europe, N. Asia E. to Kamtschatka.

† *Notiophilus biguttatus* Fbr.*—Nfld. only.—Europe, Caucasus.

Pelophila borealis Payk.*—Transamerican.—N. and W. Europe, Siberia E. to Kamtschatka. The North American population is very heterogeneous, and will probably be divided into subspecies in the future. On the other hand I completely agree with Bänninger (1930) : 1, that all American *Pelophila,* except *rudis* Lec., belong to one species, *borealis* Payk.; and 2, that, at least in Alaska, series occur which cannot be subspecifically separated from the Palaearctic form.

† *Nebria brevicollis* Fbr.—Miquelon S. of Nfld. (1 example, Mus. Paris !).—Europe, W. Asia.

Dyschirius politus Dej.* (*aureolus* Notm.).—W. Nfld. (Deer Lake district *). N. H. (♂ * Rumney, 18. VII. 30, Darlington !). N. Y. (Schoharie *, Notman).—Europe, Siberia E. to River Lena.

Dyschirius helleni J. Müll. (*secretus* Fall)*.—Alas. (Anchorage, Fall 1926, p. 130 !). Man. (Churchill 1947, R. W. Fisher, DAO !). Labr. (Forteau, Lth.).—Fennoscandia, Siberia (Jenissei). In the 3 American examples seen the wing-rudiment is slightly larger than in Fennoscandian ones.

† *Clivina fossor* L.*—Wash. (Hatch 1949b, p. 118; Brown 1950, p. 198) E. Can. (Fall 1922; Brown, l. c.). Since Hatch (*l.c.*) has confused *fossor* and *collaris* his other records are uncertain.—Europe, N. Asia E. to Kamtschatka.

† *Clivina collaris* Hbst.* (*elongata* Rand.).—Mass., well established (Randall 1838, p. 34; Brown 1950, p. 198) ! Ottawa, and Hull, Que. (DAO !).—Europe (except in the North), W. Asia.

(†) *Nomius pygmaeus* Dej.—Widely distributed in N. America.—Europe, N. Africa, W. Asia.

† *Asaphidion flavipes* L.—N. Y. (Cooper 1930) . Seen from L. I.: Queens (AMN) and Flushing (NMW).—Europe, N. Africa, W. Asia.

Bembidion (*Chrysobracteon*) *lapponicum* Zett.* (*bryanti* Carr).—Alas. (Lower Yukon, 1 ♂, NMW !). N. W. T. (Mackenzie River, DAO ! MCZ ! NMW ! BMN !).—N. Europe, Siberia E. to Kamtschatka. The specimens of *bryanti* from N. W. T. are more similar to *lapponicum f. typ.* than the single Alaskan ♂, which comes near to sbsp. *latiusculum* Mtsch. of E. Siberia (*vide* Lth. 1939-40, p. 67).

† *Bembidion* (*Metallina*) *lampros* Hbst.*—B. C. (Hatch 1949a, p. 145 !). Nfld. !—Europe, W. and N. Asia E. to River Lena.

† *Bembidion* (*Metallina*) *properans* Steph.*—N. S. (4 locs., all since 1947) !—Europe, N. Asia E. to Amur.

Bembidion (*Blepharoplataphus*) *hasti* Sahlb.*—B. C. (Chilikat Pass, Mason & Hughes, ♂ *, DAO !). N. W. T. (Kazan, A. E. Porsild, 2 ♂ * ♀, DAO !). Man. (Churchill, W. J. Brown, abundant *, DAO !). H. B. T. (Ungava Bay, L. M. Turner, 3 examples, NMW !). Que. (Great Whale River, J. R. Vockeroth, ♀, DAO !).—N. Europe, W. Siberia (probably also in the eastern parts).

Bembidion (*Plataphus*) *hyperboraeorum* Munst.*—Alas. (Sitka, "cotype" ♀ of *planiusculum* Mnh., UMH !). N. W. T. (Baker Lake, A. E. Porsild, ♂ *, DAO !).—N. Europe, Siberia (Jenissei and Lena).

Bembidion (*Daniela*) *mckinleyi* Fall * (*scandicum* Lth.).—Alas. (McKinley Park, Fall 1926, p. 132 !).—Previously known only from 2 loc. in northern-most Scandinavia.

Bembidion (*Peryphus*) *grapei* Gyll.* (*picipes* Kby. nec auct., *nitens* Lec.).—Transamerican.—N. Europe, Siberia E. to Kamtschatka, Greenland.

Bembidion (*Peryphus*) *yukonum* Fall* (*grapeioides* Munst.).—Alas. (Mt. McKinley, F. W. Morand, brachypterous ♂*, NMW !). Yukon Terr. (Dawson, macropterous ♂*, Fall 1926, p. 132; MCZ !). N. W. T. (Mackenzie Delta, Reindeer Depot W. J. Brown, brach. ♂*, DAO !).—N. Fennoscandia, Siberia (Jakutsk).

Bembidion (*Peryphus*) *dauricum* Mtsch.* — Alas. (between Rapid River and Rampart House, J. M. Jessup, ♂* 2 ♀, NMW !). N. W. T. (Mackenzie Delta, Reindeer Depot, W. J. Brown, ♀; Padley, R. E. Duckworth, ♂* ♀; DAO !). Man. (Churchill, W. J. Brown, several*, DAO !).—N. Fennoscandia, N. Asia E. to Ochotsk. This speices shows wing-dimorphism in America.

† *Bembidion* (*Peryphus*) *stephensi* Crotch* (*canadense* Hayw.).—Mass., E. Can., Nfld.—Europe only.

Bembidion (*Peryphus*) *petrosum* Gebl.* (*lucidum* Lec., *substrictum* Lec., etc.).—Transamerican.—N. Fennoscandia, W. and C. Siberia. The form from Europe and W. Siberia has been called *siebkei* J. Müll., but it is not a well defined subspecies.

† *Bembidion* (*Peryphus*) *ustulatum* L.* (*tetracolum* Say; vide Fassati 1950).—B. C., Wash. (Hatch 1949 a, p. 144 !). E. St., E. Canada.—Europe, N. Africa, W. Asia.

† *Bembidion* (*Peryphus*) *rupestre* L.*—E. Can., Nfld.—Europe, Siberia E. to River Lena. Old records of "*rupestre*" from America belong to *ustulatum* L.

Bembidion (*Peryphus*) *obscurellum* Mtsch.* (*fuscicrus* Mtsch.).—N. W. America S. to Col., Ut. and N. Mex.—Denmark, N. E. Europe,, N. and C. Asia. The penis has been compared in specimens from the following localities: Salida, Col. (2 ex.); Coeur d'Alene, Id.; The Dalles, Oreg.;—Kola Peninsula (2 ex.); West Sujetuk; Shigansk, Lena inf., Siberia; Tashidzom, Tibet. Only the last-named example shows slight differences in details of the internal sac and probably belongs to a different subspecies (possibly *pamirense* Bates). In all other specimens the highly complicate armature seems absolutely identical. It is thus a circumpolar species with slight differences between the populations in colour characters only. The valid species name is *obscurellum* Mtsch. 1845 (vide Netolitzky 1935, p. 33; 1942-43, p. 116).

Bembidion (*Diplocampa*) *transparens* Gebl.* (*sulcatum* Lec.).—Transamerican.—N. and E. Europe, Siberia E. to River Lena.

† *Tachys parvulus* Dej.*—Wash. (Hatch 1950, p. 105). 2 ♂ from Seattle seen.—S. and C. Europe. Several sbsp. described from N. Africa and Mediterranean Asia.

Patrobus septentrionis Dej.—Transamerican (Darlington 1938, p. 166).—N. and C. Europe, Siberia E. to Kamtschatka, Bering Island, Greenland. The N. American population is very heterogeneous and will probably become divided into different sbsp. in the future. At least some of the Alaskan specimens seem to agree completely, however, with the form occurring in the North of the Palaearctic region.

† *Trechus* (*Lasiotrechus*) *discus* Fbr.*—E. Can. (Brown 1940, p. 69). Seen from Granby, Que. (1939) and Mer Bleue, Ont. (1937).—Europe, Asia E. to Japan. The American specimens belong to the *forma typica* (vide Jeannel 1928, p. 97). The internal sac of the penis contains a very characteristic hairy field and dorsally, in the proximal part, a strongly chitinized, backwards directed tooth, omitted in Jeannel's figure.

† *Trechus obtusus* Er.*—Wash. (Hatch 1933b, p. 119; 1949a, p. 146;

Jeannel 1941, p. 329). 4 examples from Seattle seen (all macropterous). —W. and C. Europe, N. Africa.

† *Trechus rubens* Fbr.*—Que.! N. S.! Nfld.! The old record from N. S. (Horn 1875, p. 131) is correct (cf. Jeannel 1931, p. 425).—N. and C. Europe, Siberia E. to River Lena.

† *Petrostichus* (*Omaseus*) *melanarius* Ill.* (*vulgaris* auct. nec L.).— Pacific N. W. (Hatch 1933b, p. 119; 1949a, p. 148)! E. Can. (Brown 1950, p. 198). Nfld.—Europe, N. Asia E. to Amur.

Pterostichus (*Lyperopherus*) *vermiculosus* Men.* (*innuitorum* Brown).—N. W. T. (Brown 1949).—Eurasian tundra, W. to Petschora River. Subfossils show that the species inhabited Scandinavia at least during the last interglacial period (Lth 1948, p. 10). The genitalia of 1 example of *innuitorum* (Chesterfield, N. W. T.) have been compared with slides of Siberian specimens from the following localites: Nikandrovsk (Jenissei); Irkutsk; Batylim (Lena River); the two last-named examples have red femora and are labeled "*rubripes* Mtsch." (nomen nudum). Agreement was found in outer form of the penis and in the foldings of the internal sac. The Siberian material is more variable than the Canadian in the form of the penis apex, and especially in the form of the prothorax, which sometimes has pronounced hind angles (Batylim) and variably shaped basal foveae. On the other hand I have seen a ♀ from Nikandrovsk with a prothorax in every respect like that of *innuitorum*. Also the more or less regular sculpture of the elytra varies greatly in Siberian specimens. In the related *punctatissimus* Rand. the penis is more asymmetric, with a more acute terminal tooth and somewhat different inner foldings.

Pterostichus (*Cryobius*) *brevicornis* Kby.* (*mandibularis* auct. nec Kby., *fastidiosus* Mnh., *arcticus* J. Sahlb.).—Transamerican.—Eurasian tundra and taiga from Bering Strait to Kola Peninsula.

† *Pterostichus* (*Argutor*) *strenuus* Panz.*—Nfld. only.—Europe, N. Asia E. to Amur.

Pterostichus (*Bothriopterus*) *adstrictus* Eschz.* (*luczoti* Dej., and several other synonyms).—Transamerican.—N. and W. Europe, N. Asia E. to Kamtschatka.

† *Stomis pumicatus* Panz.—Que. (Darlington 1940)!—Europe, Asia Minor, Caucasus.

Amara (*Cyrtonotus*) *torrida* Ill.* (*rufimana* Kby., *brevilabris* Kby., *cylindrica* Lec., *reflexa* Putz., and several other synonyms).—Transamerican.—N. Europe, Siberia E. to Kamtschatka.

† *Amara* (*Cyrtonotus*) *aulica* Panz.*—N. S. (Fall 1934), Nfld. (Brown

1950).—Europe, W. Asia.

Amara (*Cyrtonotus*) *hyperborea* Dej.* (*peregrina* Mor., *elongata* Lec., *imperfecta* Brown, *Harpalus simulans* J. Sahlb.).—Transamerican in high latitudes.—N. E. Fennoscandia, N. Asia.

† *Amara* (*Bradytus*) *fulva* DeG*.—E. Can., Nfld. (Brown 1940, p. 69; 1950, p. 198.)—Europe, W. Asia.

(†) *Amara* (*Bradytus*) *apricaria* Payk.* (*putzeysi* Horn).—Probably transamerican (incl. B. C. !).—Europe, Asia E. to Amur.

Amara (*Celia*) *interstitialis* Dej.*—Only in the extreme Northwest: Alas. (Nulalo, Harrington, ♂*, NMW !). Yukon Terr. (Dawson, W. W. Judd, ♂* ♀, DAO!). Other American records refer to *patruelis* Dej. which is specifically distinct.—N. Europe, N. Asia E. to Kamtschatka.

Amara (*Celia*) *erratica* Dft.*—Transamerican.—Europe (boreoalpine), Caucasus, Siberia E. to Kamtschatka.

Amara (*Celia*) *Quenseli* Schh.* (*remotestriata* Dej.).—Transamerican.—N. and C. Europe, N. Asia E. to Kamtschatka.

† *Amara* (*Celia*) *bifrons* Gyll.*—N. S. and Nfld. (Brown 1950, p. 198) !—Europe, W. Asia.

(†) *Amara* (*s. str.*) *lunicollis* Schio.* (*vulgaris* auct. p. p., *marquettensis* Csy., *carriana* Csy.).—Probably transamerican and indigenous, but also introduced in the N. E. (Brown 1950, p. 199).—Europe, N. Asia E. to Kamtschatka.

† *Amara* (*s. str.*) *aenea* DeG.* (*devincta* Csy.).—N. E. U. S. (Darlington 1936). E. Can., Nfld. (Brown 1950, p. 199).—Europe, N. Africa, W. and C. Asia.

† *Amara* (*s. str.*) *familiaris* Dft.* (*humilis* Csy.).—Pacific N. W. (Hatch 1949a, p. 150). N. E. U. S., E. Can., Nfld. (Darlington 1936; Brown 1950, p. 199).—Europe, N. Africa, W. Asia.

† *Amara* (*s. str.*) *anthobia* Villa.*—Wash. (Hatch 1949a, p. 149) !—S., C. and W. Europe, Asia Minor, Caucasus.

† *Licinus silphoides* Fbr.—Mass. (Leconte 1873, p. 324; Horn 1880; Wickham 1896, p. 47), 1 ♂ in coll. Lec. (MCZ!), completely agreeing with specimens from France and Italy. The species was apparently accidentally introduced and soon extinct.—S. Europe, Mediterranean Asia.

† *Calathus fuscipes* Gze.*—B. C. (Vancouver; Hatch 1949a, p. 151) !—Europe, N. Africa, W. Asia E. to Persia.

† *Pristonychus terricola* Hbst.—Que., N. B., N. S., Nfld.—Europe, Caucasus.

† *Pristonychus* (*Laemosthenes*) *complanatus* Dej.—Pacific Coast (Leech 1935, p. 122; Gray & Hatch 1941, p. 13; Hatch 1949a, p. 152) !—Almost

cosmopolitan: S. Europe, Mediterranean Asia, N. and S. Africa, Australia, S. America.

† *Agonum* (*Anchomenus*) *ruficorne* Gze.* (*albipes* Fbr., *clemens* Lec.).—Me., N. B., N. S., Nfld.—Europe, Mediterranean area.

† *Agonum* (*s. str.*) *mülleri* Hbst.* (*hardyi* Lec.).—B. C. (Vancouver, Leech 1935; DAO!). Mass., Me. (MCZ!). E. Can., Nfld. (Brown 1950, p. 199).—Europe, Caucasus, W. Siberia.

Agonum (*Agonodromius*) *quadripunctatum* DeG.*—Transamerican.—Europe, Asia E. to Kamtschatka.

Agonum (*Agonodromius*) *bogemanni* Gyll.* (*obsoletum* Say, *strigicollie* Mnh., etc.).—Transamerican.—Europe (extremely rare), Siberia.

Agonum (*Europhilus*) *thoreyi* Dej.* (*picipenne* Kby. nec auct., *gemellum* Lec.).—Transamerican.—Europe, Asia E. to Amur.

Agonum (*Europhilus*) *consimile* Gyll.* (*invalidum* Csy.).—Transamerican.—Fennoscandia, Siberia, Kamtschatka.

Agonum (*Europhilus*) *exaratum* Mnh.* (*aldanicum* Popp.).—Alas., N. W. T. (Mackenzie Delta, DAO!).—Kola and Kanin Peninsulae, E. Siberia.

† *Perigona nigriceps* Dej.—Widely distributed in U. S. A. (Fender & Hatch 1949).—Cosmopolitan.

† *Plochionus pallens* Fbr.—Pa., Fla., Calif.—Cosmopolitan.

† *Harpalus* (*Pseudophonus*) *rufipes* DeG.* (*pubescens* Müll.).—E. Can., Nfld. (Brown 1940, p. 70; 1950, p. 199).—Europe, N. Africa, Asia E. to Lena River, ? Japan.

† *Harpalus* (*s. str.*) *affinis* Schrk.* (*aeneus* Fbr., *viridiaeneus* Beauv.).—E. St., E. Ca.—Europe, N. Asia E. to River Lena.

Harpalus (*s. str.*) *fuliginosus* Dft.*—Transamerican.—Europe, N. Asia E. to Kamtschatka and Japan.

† *Anisodactylus binotatus* Fbr.*—B. C., Wash. (Hatch 1949a, p. 153)!—Europe, N. Africa, W. Asia.

† *Acupalpus meridianus* L.*—Wash. (Hatch 1946a)!—Europe, W. Asia.

Trichocellus cognatus Gyll.* (*ruficrus* Kby.).—Transamerican.—N. and C. Europe, Siberia E. to River Lena, Greenland.

B. Species occurring as different subspecies

Carabus truncaticollis Eschz. 1829.—N. W. arctic America.—In Siberia and N. E. Europe (Petschora) is sbsp. *polaris* Popp. 1906. Breuning (1932-37, p. 775, 777) treats the two forms as different species and summarizes the distinguishing characters which, however, seem to have merely subspecific value (cf. Van Dyke 1945, p. 98).

Blethisa multipunctata L. 1758.*—In E. Siberia and N. America is sbsp. *aurata* Fisch. 1828 (*hudsonica* Csy. 1924). The *f. typ.* occurs through Europe and Siberia but apparently does not reach the Pacific.

Diachila arctica Gyll. 1810.*—In E. Siberia and N. America (Alas.! H. B. T.! Labr.!) is sbsp. *amoena* Fald. 1835 (*subpolaris* Lec. 1863). The *f. typ.* is in N. Europe and W. Asia.

Nebria nivalis Payk.*—The true *nivalis* occurs in N. Europe and W. Siberia, E. at least to River Ob. The sbsp. *femorata* Mtsch., if at all separable, represents the transition to sbsp. *bifaria* Mnh., described from Kamtschatka and distributed throughout the northernmost parts of N. America, E. to Baffin Island, Newfoundland and (isolated) on Mt. Katahdin, Me. Sbsp. *bifaria* is pronouncedly variable and there is little doubt that the recent record of true *nivalis* from Alaska (Britton 1950, p. 60) refers to *bifaria*. The repeated records of *nivalis* for Greenland are false and due to a confusion with the red-legged form (*balbii* Bon.) of *gyllenhali* Schnh.[1]

Nebria gyllenhali Schnh.—Represented in the New World by the transamerican sbsp. *castanipes* Kby. (*moesta* Lec., *labradorica* Csy., *prominens* Csy., *curtulata* Csy.) (vide Bänninger 1925, p. 259, 279). The *f. typ.* occurs in Europe (boreoalpine) and the main parts of N. Asia. In E. Siberia is the transitional form *besseri* Fisch. (*dubia* R. F. Sahlb.) (vide Holdhaus & Lindroth 1939, p. 132-135).

Bembidion (*Plataphodes*) *crenulatum* F. Sahlb.* (*laevistriatum* Mtsch., acc. to Netolitzky 1935, p. 23).—According to the inner penis structure of a paratype, *farrarae* Hatch (1950, p. 99; Wash.) must be regarded as a subspecies of *crenulatum* (described from Ochotsk, E. Siberia). In N. E. Europe this species occurs as sbsp. *ponojense* J. Sahlb. (vide Lth 1939-40, p. 75, fig. 15-16).

Bembidion (*s. str.*) *quadrimaculatum* L.*—I am able to confirm the opinion of Fassati, communicated in a letter to me, that the North American population of this species differs from the Palaearctic form by constant differences in prothorax and in the penis. Thus Say's *oppositum*, hitherto regarded as a synonym, must be raised to the rank of a subspecies. It is probably transamerican in distribution.

Tachyta nana Gyll.*—The North American *inornata* Say (*picipes* Kby.) has been regarded by some authors (e.g. Andrewes 1925, p. 486; Csiki 1933, p. 1650) as a pure synonym of *nana*, while Casey (1918, p.

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[1]The records for *Carabus chamissonis* Fisch. and *Pterostichus* (*Cryobius*) *arcticola* Chd. from Greenland are likewise wrong.

215) treats them as different species. In fact, the two seem to agree completely in form and inner armature of the penis (*falli* Hayw. and *angulata* Csy. are quite different) but the true Palaearctic *nana* possesses a rudiment of a carina in the hind angle of the prothorax which is totally lacking in *inornata*. So it seems most appropriate to regard the American form as a subspecies of *nana*.

Amara (*Cyrtonotus*) *alpina* Payk.*—The transamerican *brunnipennis* Dej. (*obtusa* Lec.) differs from the true *alpina* only by having less pronounced hind angles of the prothorax and somewhat brighter antennae. It is extremely variable (Brown 1937) and is connected by transitional forms in E. Siberia with the true, trans-eurasian *alpina*.

Calathus micropterus Dft.*—Hatch (1938, p. 146) regards *ingratus* Dej. as a pure synonym of *micropterus*. This is not correct. There are constant differences in the apical part of penis but, on the other hand, these have hardly more than subspecific value. The *f. typ.* is widely distributed in Europe and N. Asia; sbsp. *ingratus* is transamerican.

Agonum mannerheimi Dej.*—The transamerican sbsp. *stygicum* Lec. is larger and darker than the *f. typ.* but the penis is almost identical. It is remarkable that the *f. typ.* is known only from N. Europe and W. Siberia.

Miscodera arctica Payk.*—In N. America is sbsp. *americana* Mnh. (*hardyi* Chd.). *Erythropus* Mtsch., notwithstanding Hatch (1933a), is a (doubtful) subspecies from E. Asia. The *f. typ.* is probably transeurasian.

Harpalus nigritarsis Sahlb.*—In N. America is sbsp. *proximus* Lec. (*recensus* Csy.) which has a transamerican distribution. The *f. typ.* is known from N. Fennoscandia (extremely rare, not taken within a century) and, doubtfully, from Siberia.

C. Species cited in error as Eur-American by Leng 1920, or later

Trachypachys zetterstedti Gyll.*—Hatch (1933b, p. 117) regards the American *holmbergi* Mnh. (*inermis* Mtsch.) as a pure synonym of *zetterstedti*. This is incorrect. The penis form is very different (fig. 3). Though I have had no opportunity to examine the single type of *holmbergi* (it went to Chaudoir, vide 1857, p. 76) it is easy to see that the specimens from the Pacific N. W. usually passing as *inermis* fit Mannerheim's description. Externally, *holmbergi* differs from *zetterstedti* by having a smooth head without (or only with traces of) frontal foveae, by having more prominent front angles of the prothorax which is more

flattened laterally and has the carinae inside the hind angles strongly diverging from the side margins, and by having the elytra longer, with less rounded sides. Hatch based his opinion of the synonymy of the American form on comparison with a Siberian specimen. It is therefore possible that *holmbergi* occurs in E. Asia. This seems to me unlikely, however, because the small form described as *transversicollis* Mtsch., according to a male from Aldan, Siberia (UMH !), is in all essential respects, including the penis, completely in agreement with the true European *zetterstedti*.

Carabus problematicus Hbst. (*catenulatus* auct. nec Scop.).—In Leng's 4th supplement (1939) this species is cited from California on the authority of Breuning (1932-37, p. 823), who listed *californicus* Mtsch. under *problematicus* (vide also Csiki 1927, p. 81). But Breuning expressly states that the locality given by Motschulsky must be wrong. This has already been pointed out by Van Dyke (1945, p. 88).

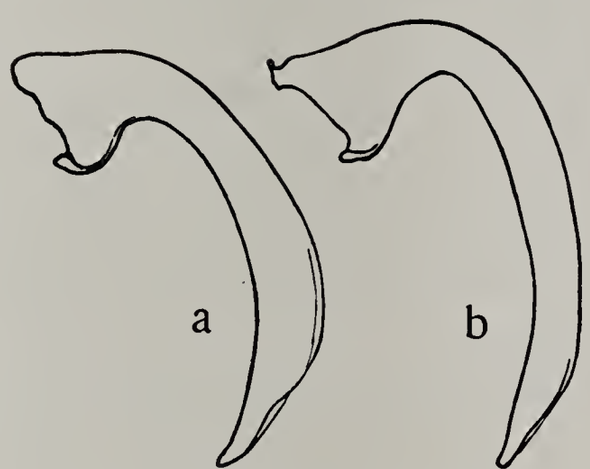

FIG. 3. Penis of: *a Trachypachys zetterstedti* Gyll. (Målselv, Bjerkeng, Norway), *b T. Holmbergi* Mnh. (*inermis* Mtsch.) (Mt. Adams, Wash.).

Leistus piceus Fröl.*—The specimen upon which the supposed occurrence in America was based (Hamilton 1889, p. 93) is a ♂ in coll. Leconte (MCZ!) labelled "Fitchburg, Mass.". It is not the European species. The penis is extremely characteristic and identical with that of *ferruginosus* Mnh. (acc. to specimens from Alas. and Wash.). By Leng (1920), the American "piceus" was doubtfully synonymized with *nigropiceus* Csy., which in turn is a pure synonym of *ferruginosus* (according to a genital slide of one of Casey's ♂ paratypes, NMW), as already suggested by Hatch (1949b, p. 115).

Nebria carbonaria Eschz.—The record for Europe in Leng (1920) is wrong. It is an E. Siberian species (Bänninger 1925, p. 264).

Dyschirius aeneus Dej.*—This is not the same as *integer* Lec. The latter, according to the type, is well defined by the rough sculpture of its front. More closely related to *aeneus* is *nigripes* Lec., but there are clear differences in the penis.

Bembidion (*Chrysobracteon*) *litorale* Ol.* (*paludosum* Sturm).—The distinctness of the American species passing under this name has already been pointed out by Fall (1910, p. 94) and Netolitzky (1942-43, p. 51). But Fall was wrong in selecting as a substitute the name

lacustre Lec. which, according to the type, is a synonym of *inaequale* Say. The only name available for the American "*litorale*" is *carrianum* Csy.

Bembidion (*Eupetedromus*) *nigripes* Mnh. (nec Kby.)*.—Netolitzky (1942-43, p. 76) has reported this species from Europe on account of an incorrect determination of *tinctum* Zett. (vide Lth 1944). In fact, *nigripes* Mnh. is a synonym of *incrematum* Lec. (*arcuatum* Lec.), a species unknown outside N. America.

Bembidion (*Eupetedromus*) *dentellum* Thunb.*—Doubtfully synonymized with *incrematum* Lec. by Leng (1920) and several older authors. All N. American *Eupetedromus* show clear differences in the male genitalia from the Palaearctic *dentellum*.

Fig. 4. Penis and parameres of *Amara brunnea* Gyll. (Hälsingborg, Scania, Sweden).

Amara (*Celia*) *brunnea* Gyll.*—As suggested by Hatch (1949c, p. 82), the true *brunnea apparently* does not occur in America. The numerous specimens seen by me under this name in American collections belong with few exceptions to either of two species, both from the Pacific N. W. One is very similar to *praetermissa* Sahlb. but (like *brunnea*) lacks an ocellate puncture at the base of elytron and has a penis different from both. This is probably *amplicollis* Mnh., synonymized with *brunnea* by Horn (1892, p. 40; and also by Csiki 1927-33, p. 447). Unfortunately, the Mannerheim species is not represented in UMH, the type apparently having been given to Chaudoir (Putzeys 1866, p. 197). The second "*brunnea*" is more similar to *subaenescens* Cki. (*subaenea* Lec.) but differs, among other ways, by the well developed ocellate puncture of elytron. According to the description it is probably *exlineae* Minsk and Hatch (1939, p. 215). The only American species with a prothorax of true *brunnea*-type is *muscula* Say, but the penis and parameres of this are quite different. In the genuine Palaearctic *brunnea* Gyll. the right paramer has a very characteristic tip (fig. 4; *cf*, the misleading figure in Jeannel 1942, p. 926).

Badister bipustulatus Fbr.*—The 2 ♂ ♂ from Vancouver on which the American record was founded (Leconte 1880, p. 165) are in coll. Leconte (MCZ !). They are identical with the common *neopulchellus* n. nom. (*pulchellus* auct. nec Lec.), a species more related to the Palaearctic *unipustulatus* Bon. than to *bipustulatus*, but clearly distinct from both.

Agonum impressum Panz.—Doubtfully synonymized with *perforatum* Lec. in Leng (1920). The type and a paratype of the latter (H. B. T., MCZ!) show clear difference from the European *impressum*, for example in the form of the prothorax and the tip of the elytra, and in the much stronger microsculpture.

Agonum obscurum Hbst.*—Hatch (1933b p. 121) has shown the clear specific difference between *pusillum* Lec. (*americanum* Lec. nec Lap.) and the Palaearctic *obscurum*. In addition the penis is quite different (fig. 5), and the parameres of *pusillum* are of unequal length.

Microlestes minutulus Gze.* (*Blechrus glabratus* Dft.).—Under "*Blechrus nigrinus* Mnh." in coll. Leconte (MCZ!) there are 3 species of *Microlestes* (incl. *linearis* Lec., regarded by himself as a synonym), all perfectly characterized by differences of the penis. I am unable to settle the correct names of these species. None of them is identical with the Palaearctic *minutulus*. Holdhaus (1912, p. 62) has already denied the occurrence of any Palaearctic *Microlestes* in America.

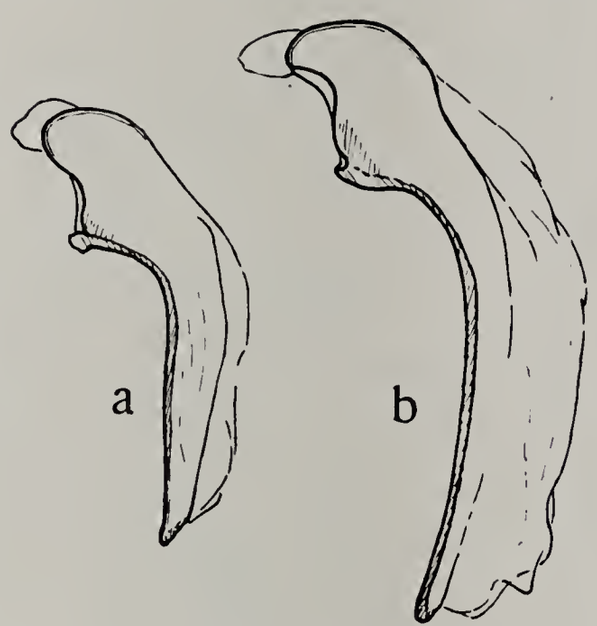

FIG. 5. Penis of: *a Agonum obscurum* Hbst. ("Europe"), *b A. pusillum* Lec. (Cambridge, Mass). Length of insect: 5.4 viz. 5.5 mm. Internal sac partly everted, especially in *b*.

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